

Fig. 1

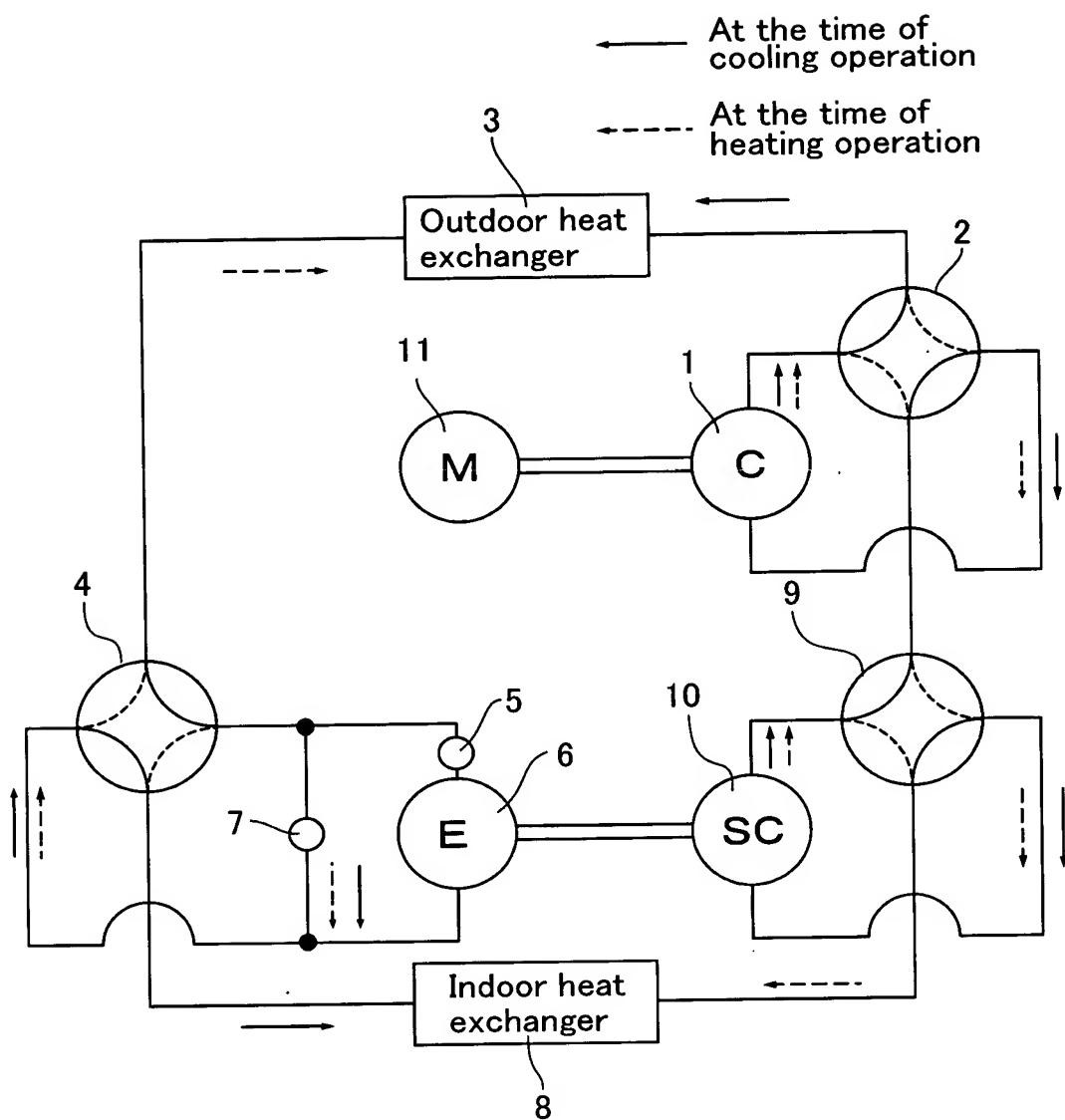


Fig. 2

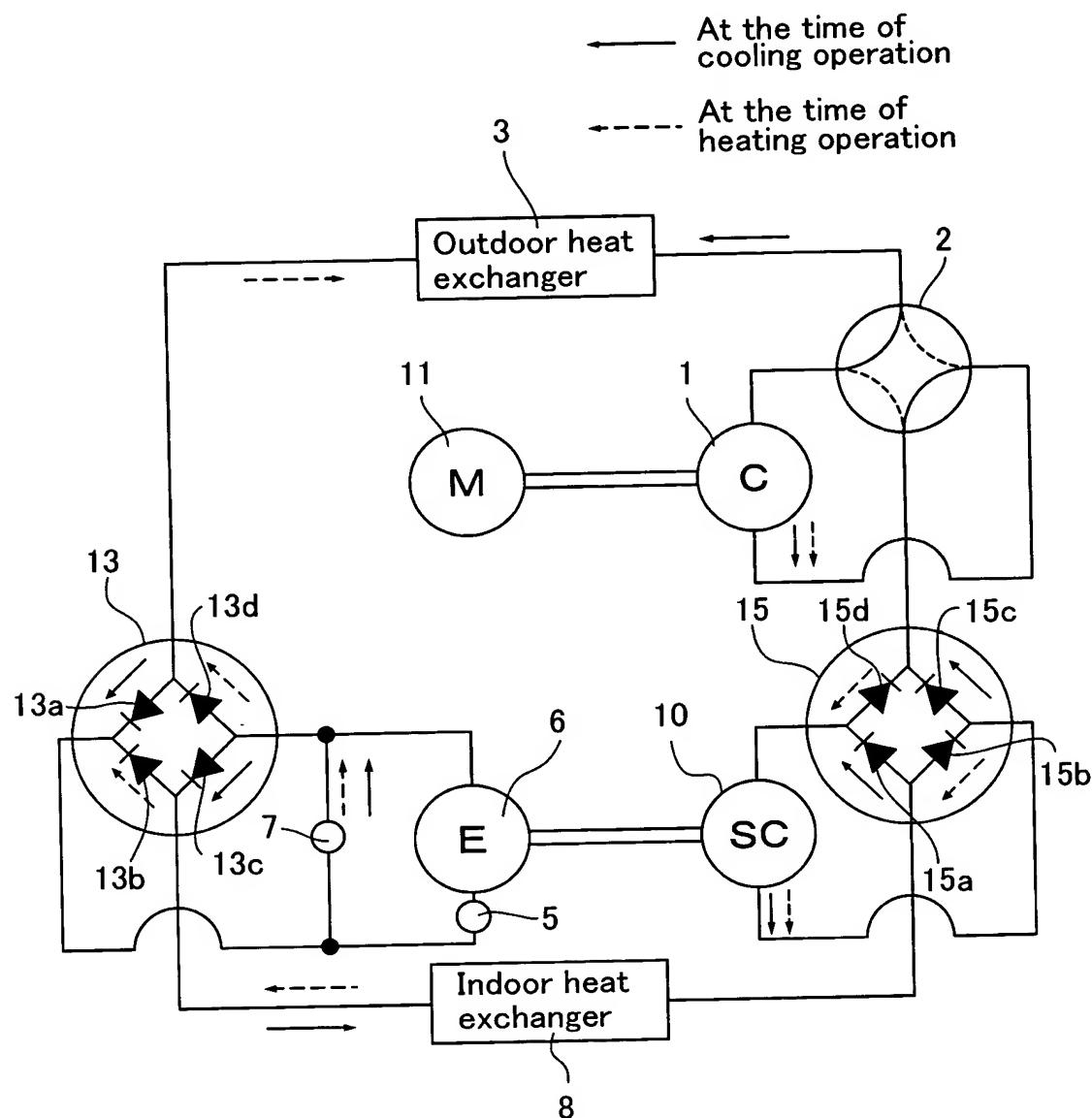


Fig. 3

Fixed density ratio

	At the time of cooling operation		At the time of heating operation	
	Rated operation	1/2 rated operation	Rated operation	1/2 rated operation
Supercharger mode	4.09	3.36	8.50	8.02
Super- pressurizing mode	3.00	2.65	5.99	5.29

	Rated operation	1/2 rated operation	Rated operation	1/2 rated operation
Switching system between supercharger mode and super- pressurizing mode	4.09	3.36	5.99	5.29

Fig. 4

		COP value		
		Present invention	Comparative example	
At the time of heating operation	Switching system between supercharger mode and super-pressurizing mode		Bypass valve and pre-expansion valve system	Electric generator system
	Rated operation	5.456	5.302	5.547
At the time of cooling operation	1/2 rated operation	5.672	5.490	5.781
	Rated operation	4.862	4.862	4.504
Average COP value (rated)	1/2 rated operation	5.089	5.089	4.943
		5.159	5.082	5.026

Fig. 5

Frequency range (estimation)		Main compressor frequency	Frequency ratio	Auxiliary compressor frequency
At the time of heating operation	Rated operation	60	0.6545	39.3
	1/2 rated operation	30	0.6131	18.4
At the time of cooling operation	Rated operation	40	1.000	40
	1/2 rated operation	20	0.9824	19.6

Fig. 6

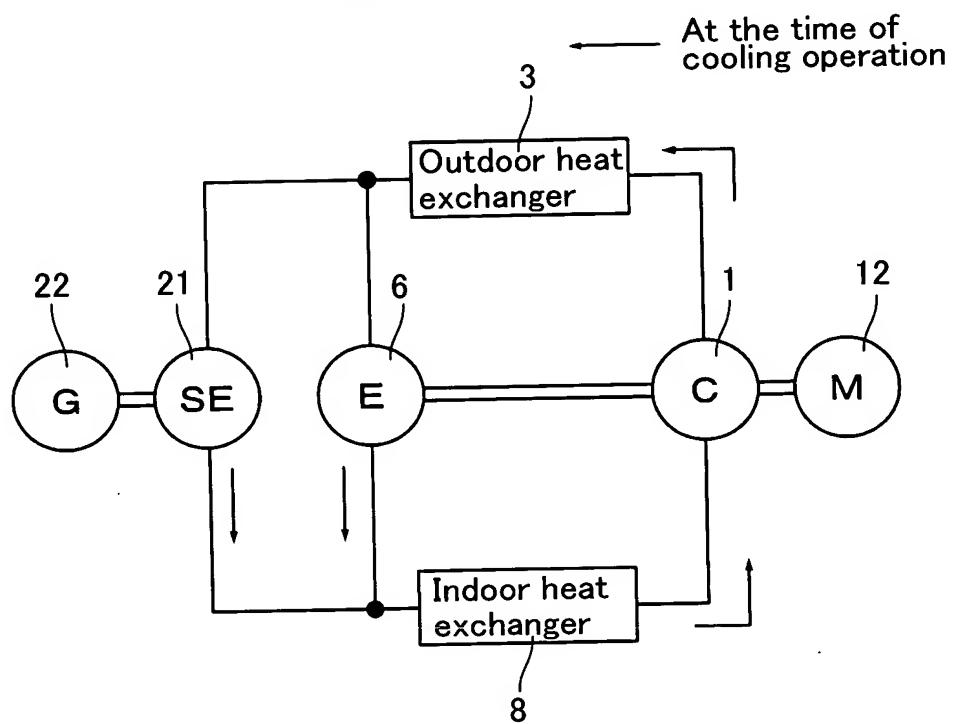


Fig. 7

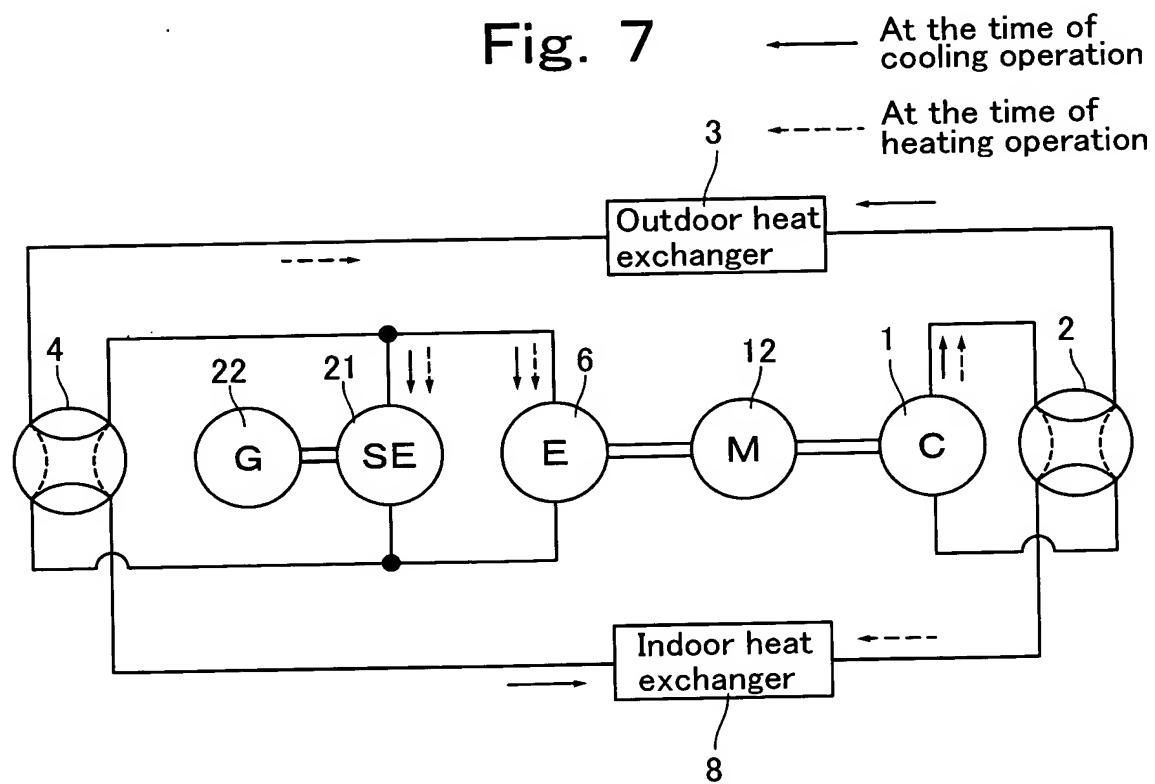


Fig. 8

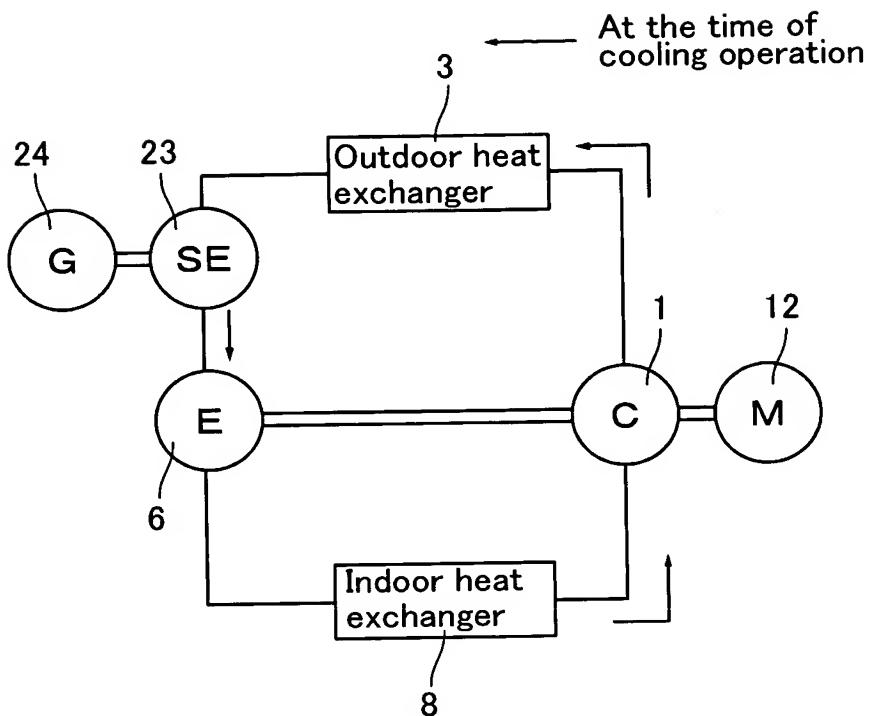


Fig. 9

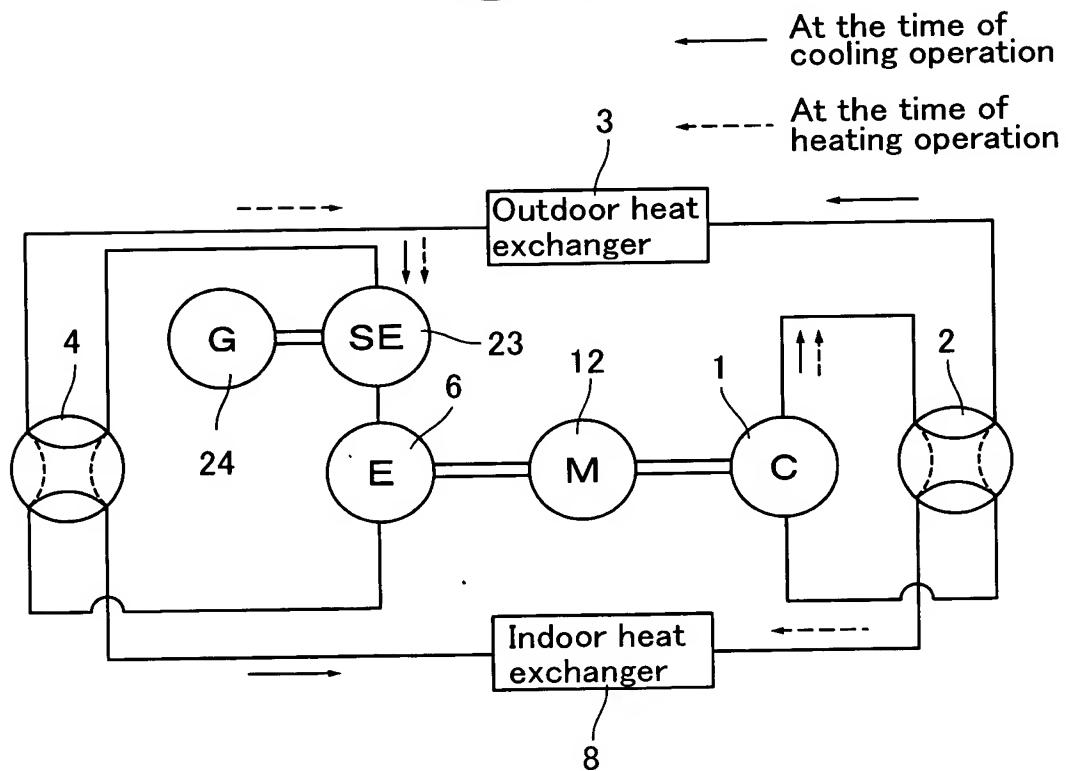


Fig. 10

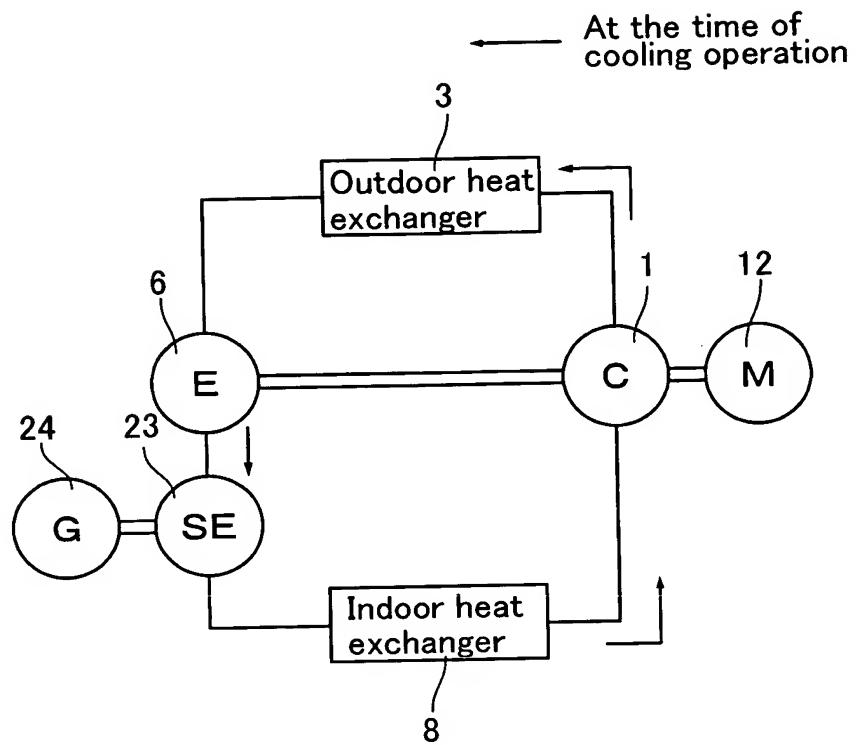


Fig. 11

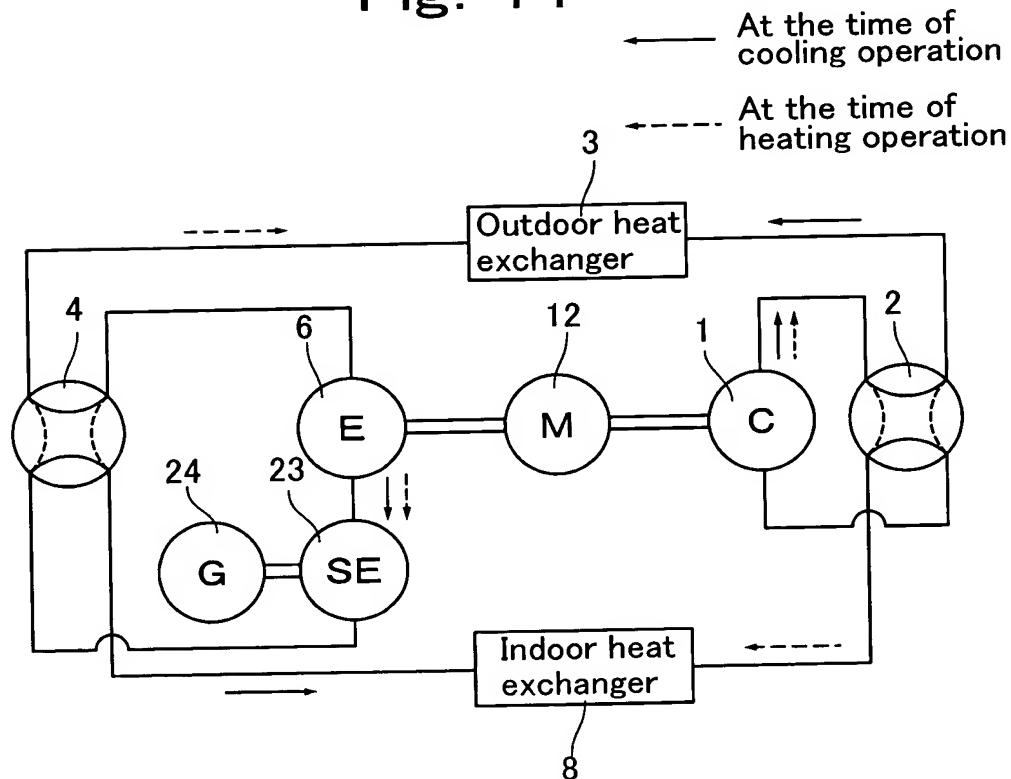


Fig. 12

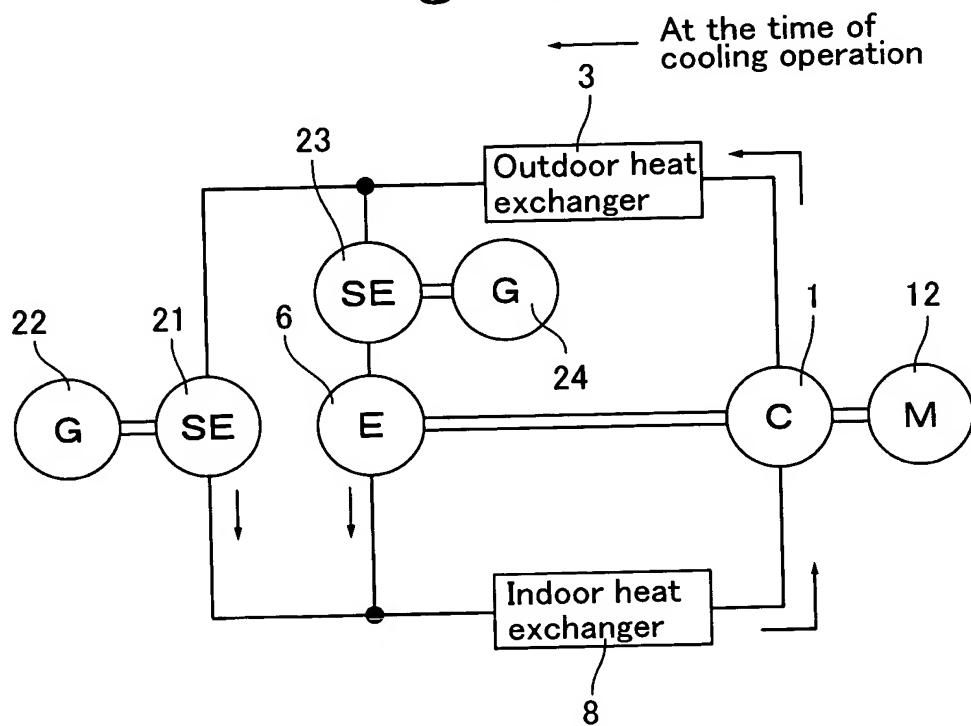


Fig. 13

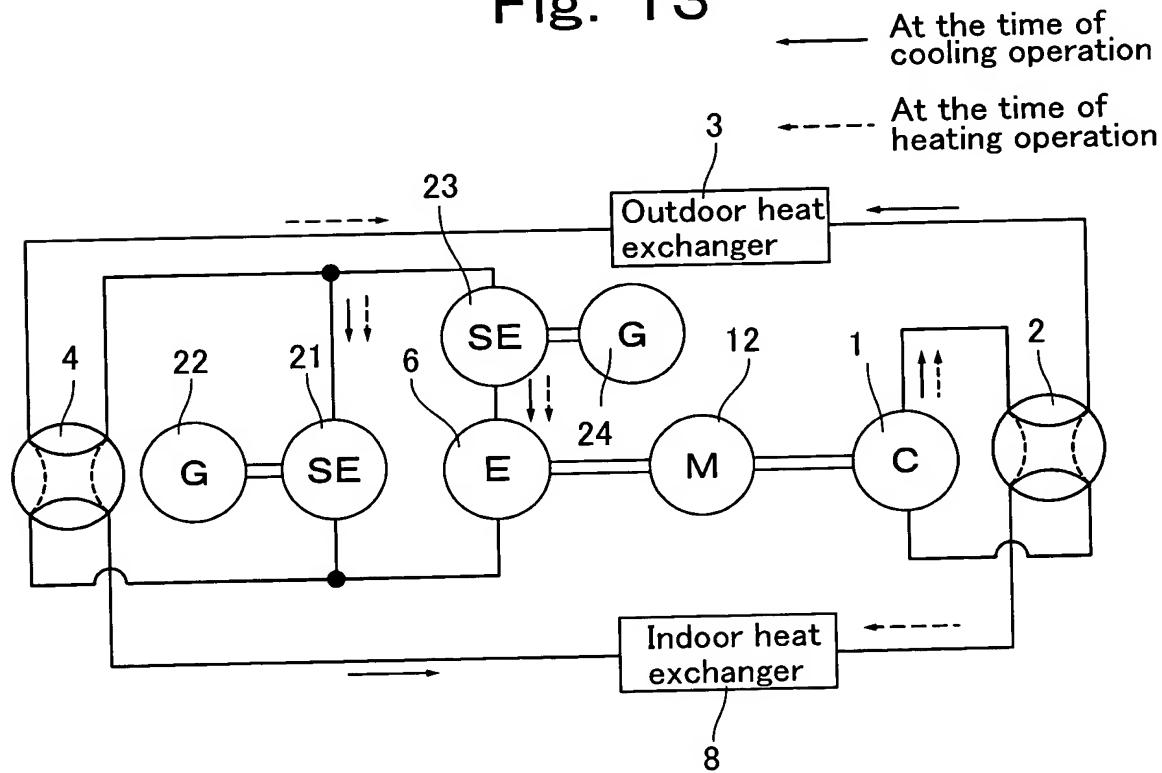


Fig. 14

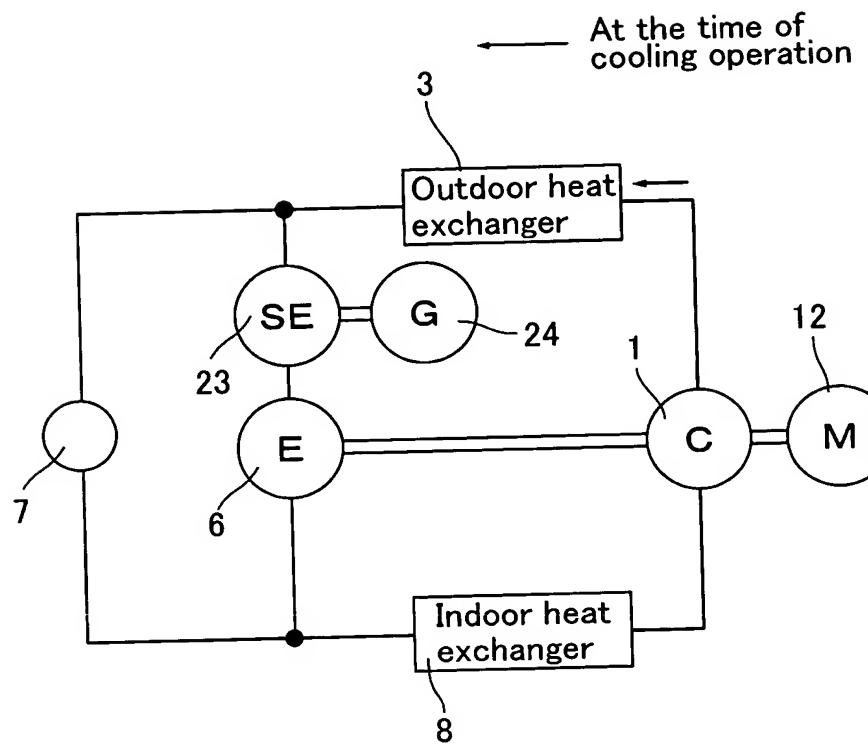


Fig. 15

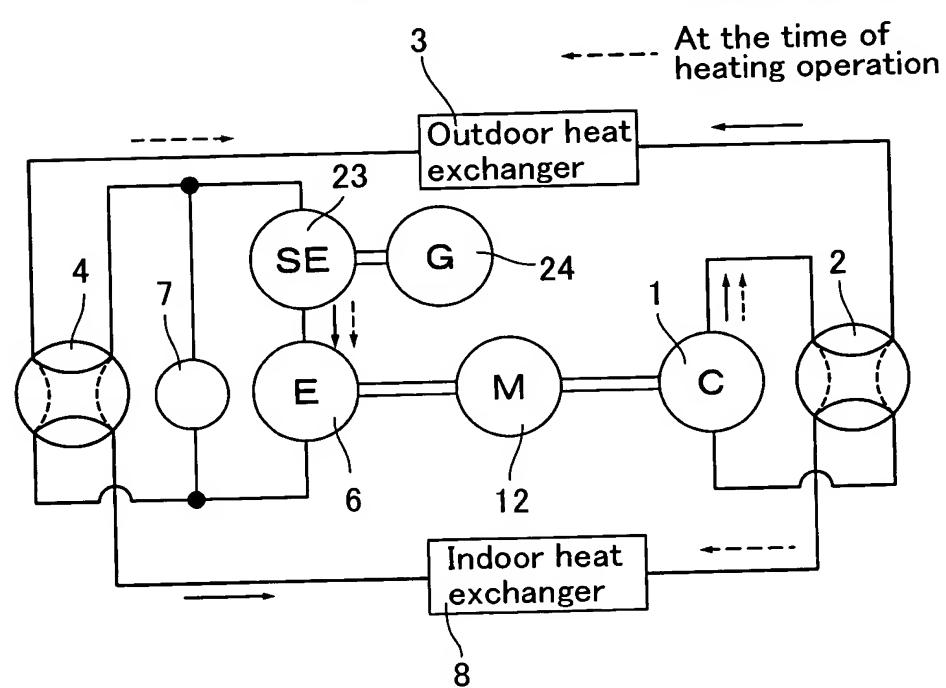


Fig. 16

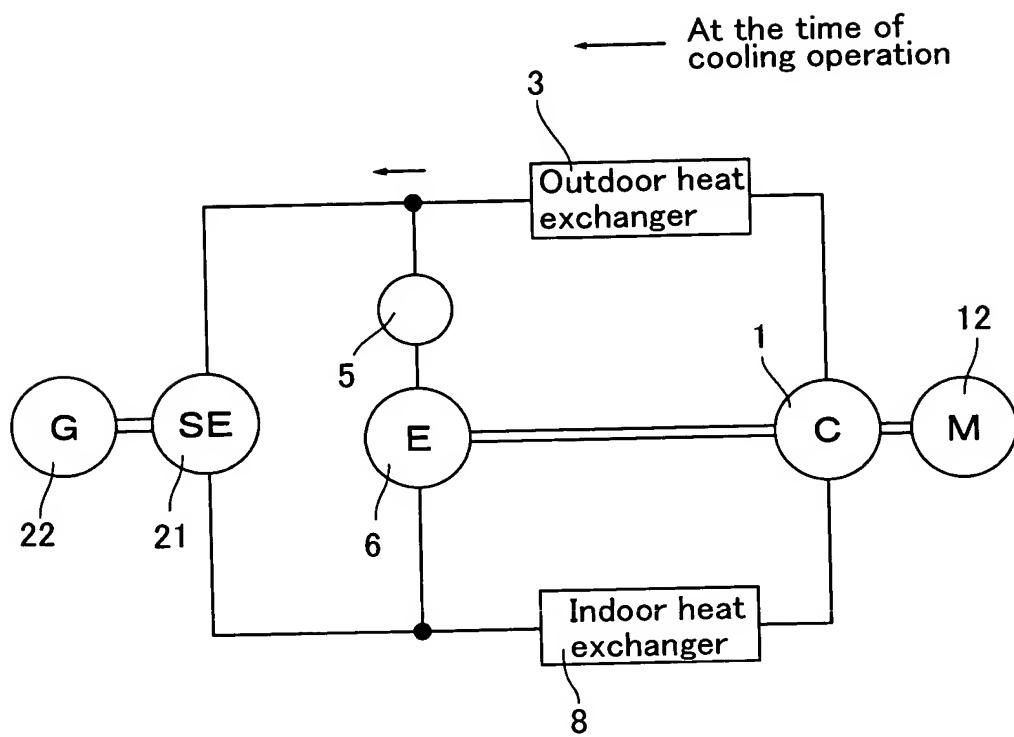


Fig. 17

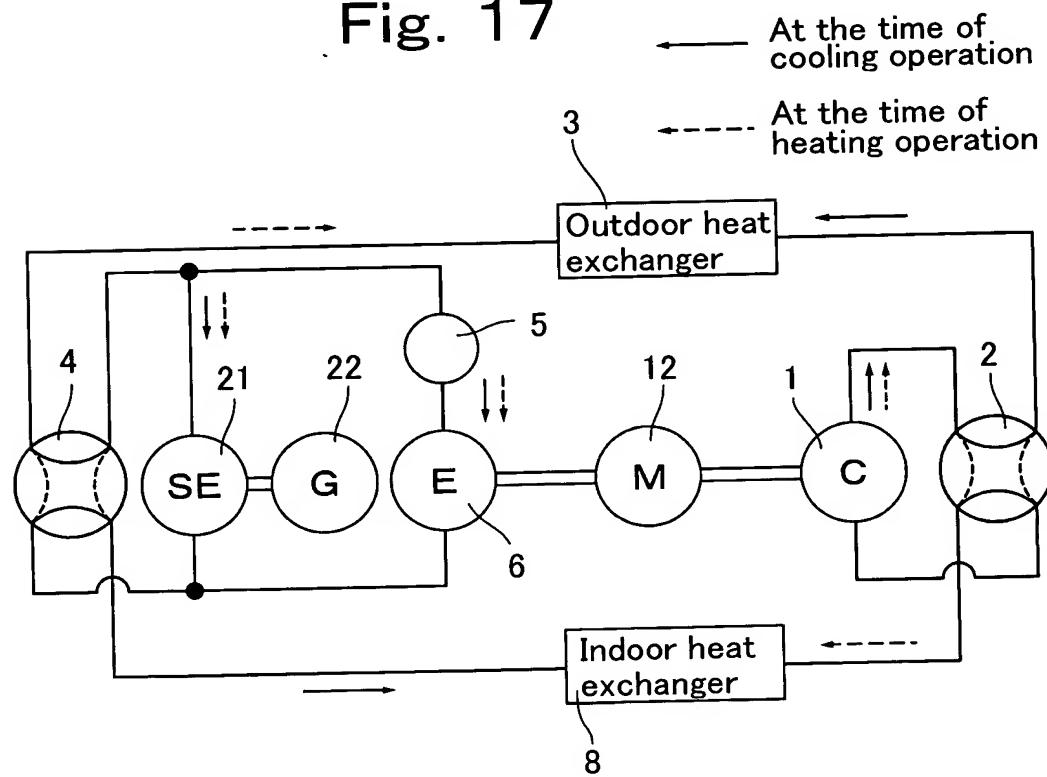


Fig. 18

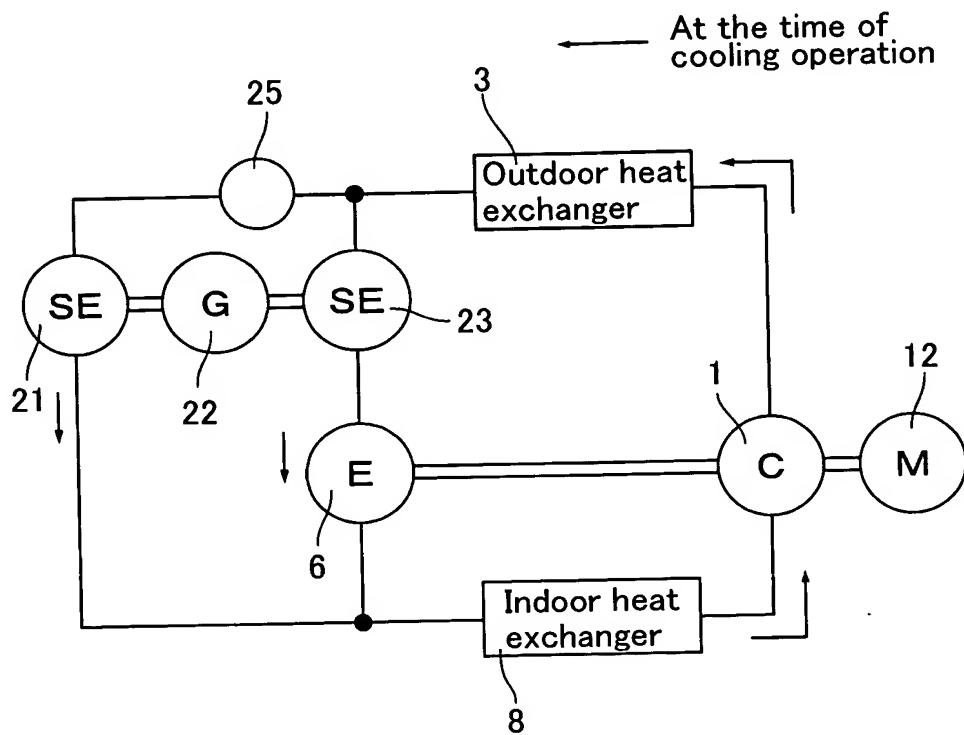


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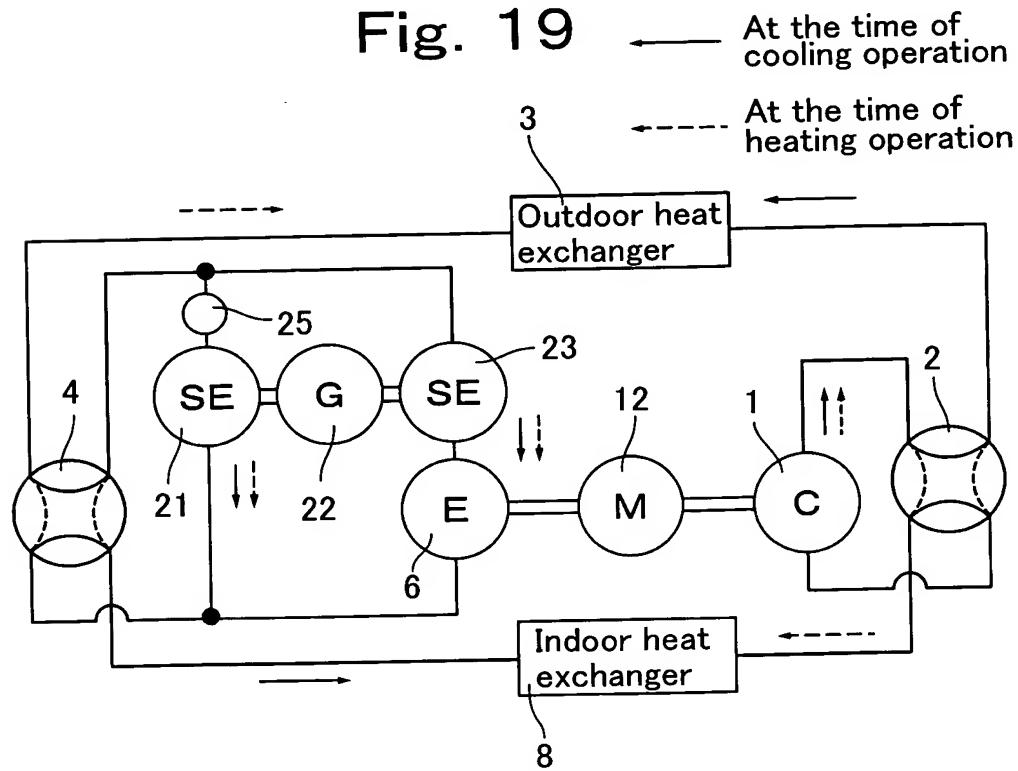


Fig. 20

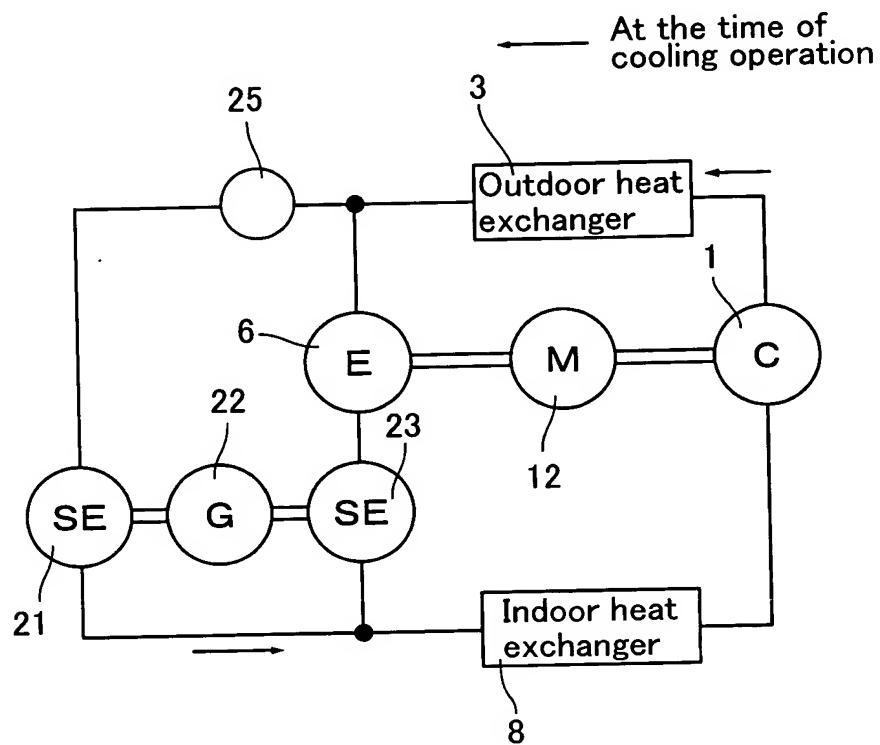


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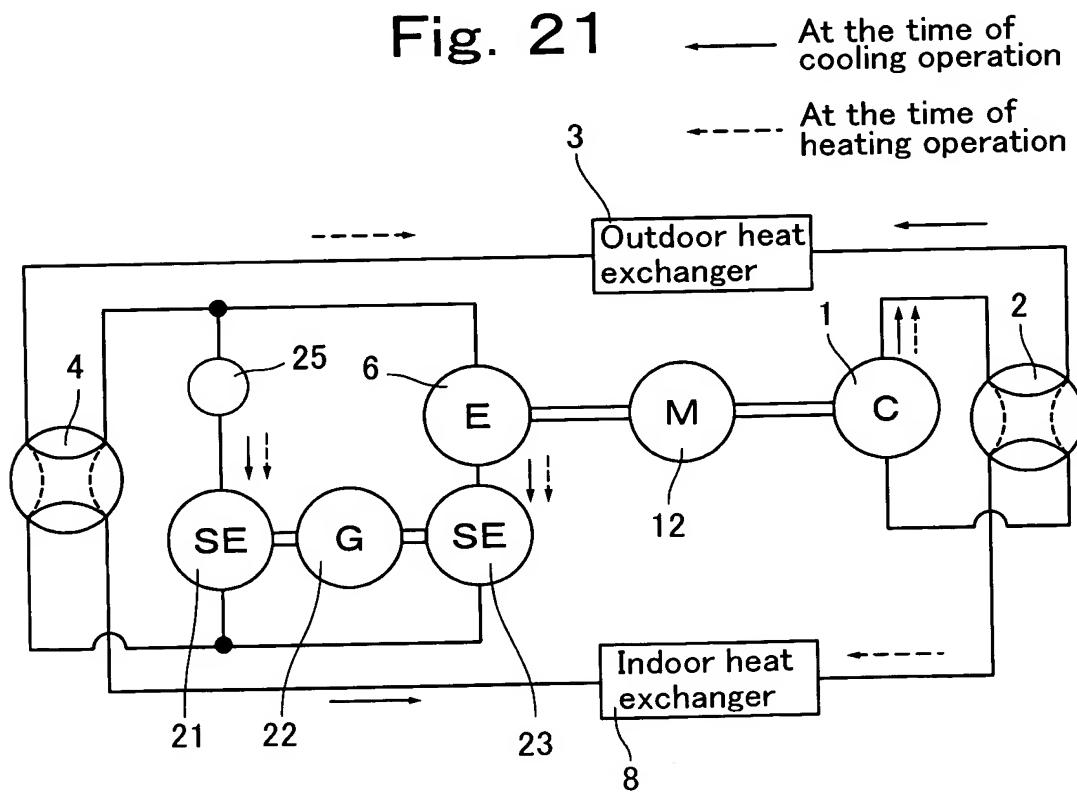


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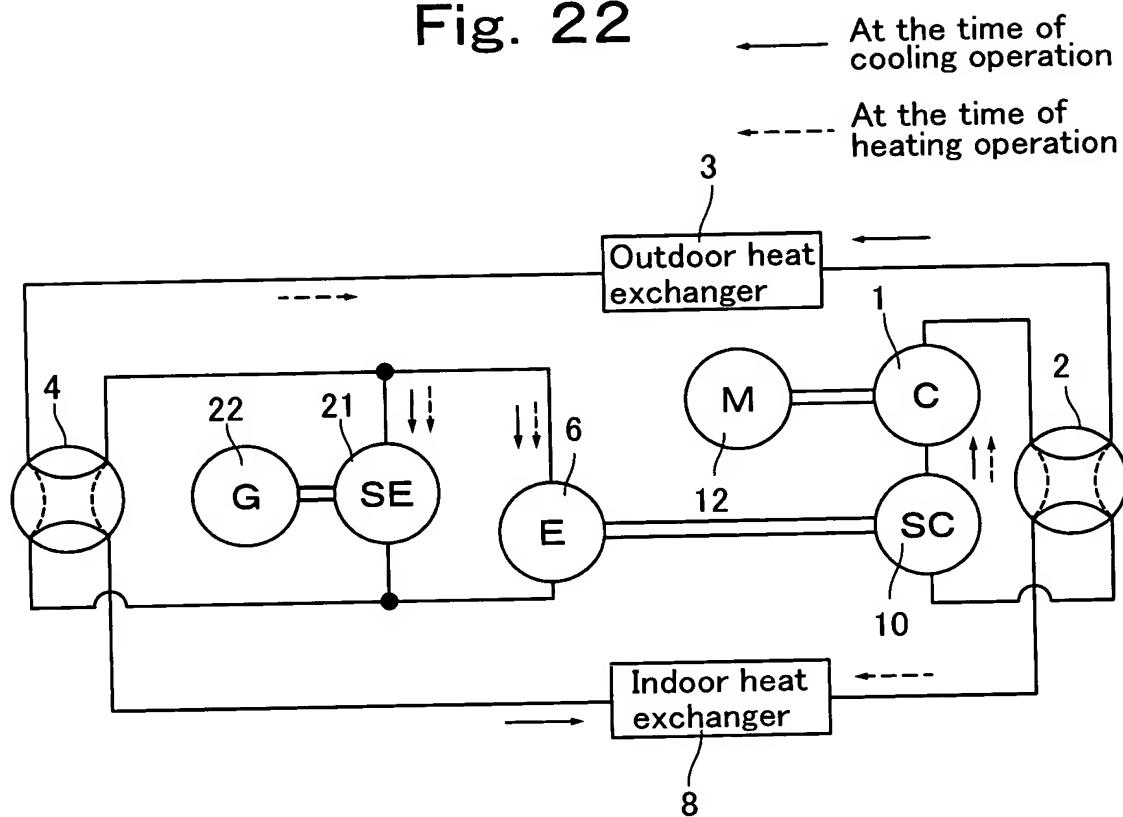


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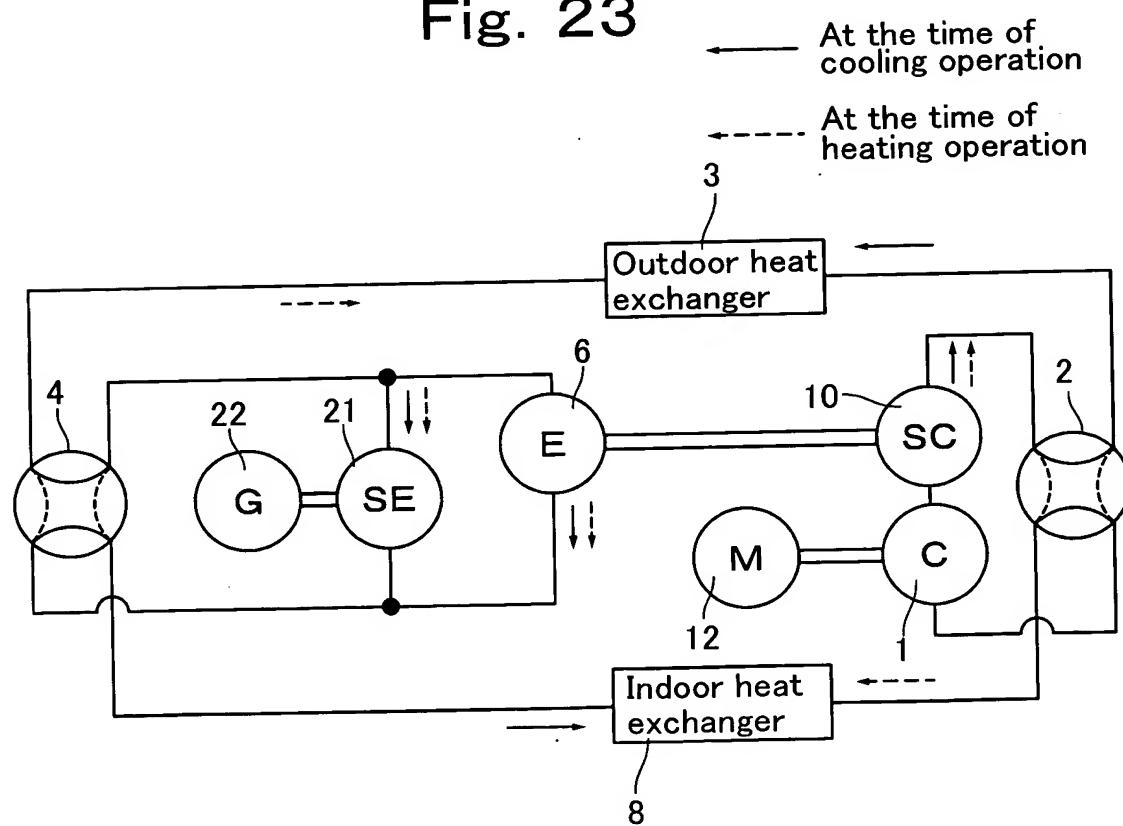


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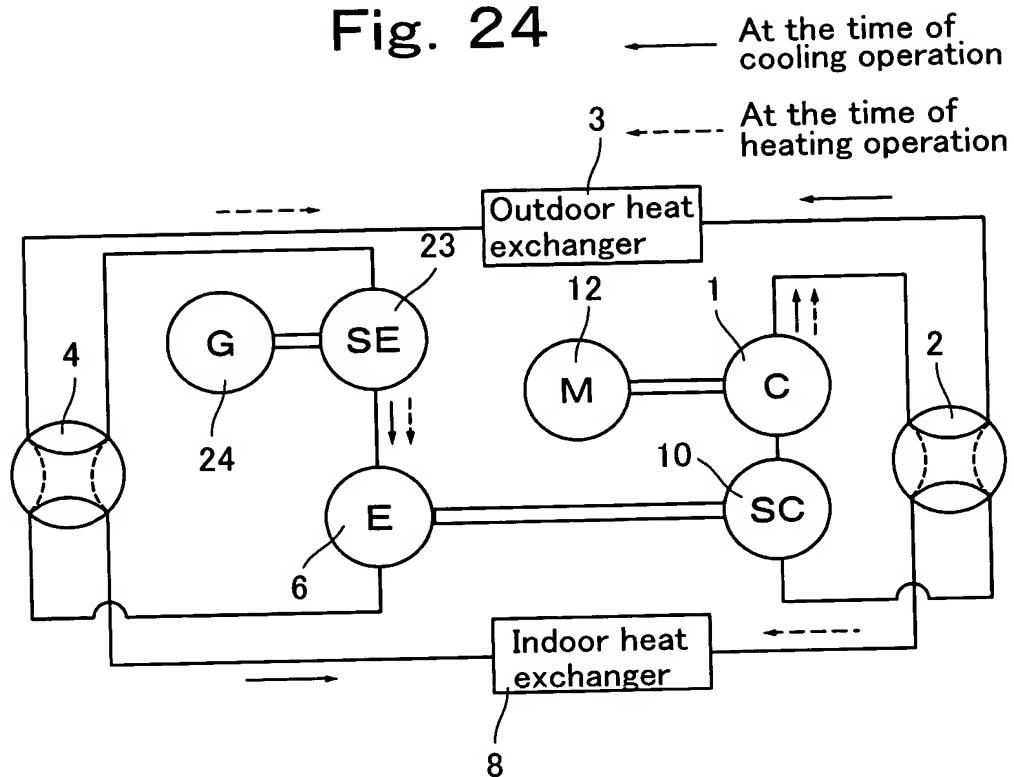


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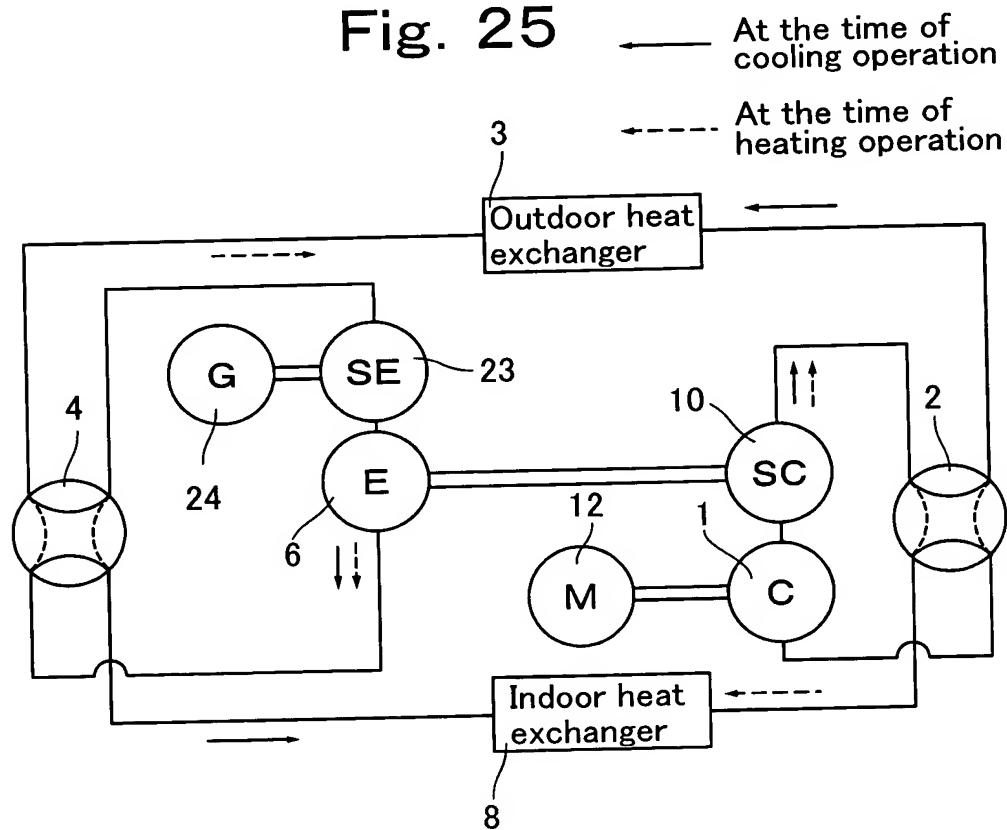


Fig. 26

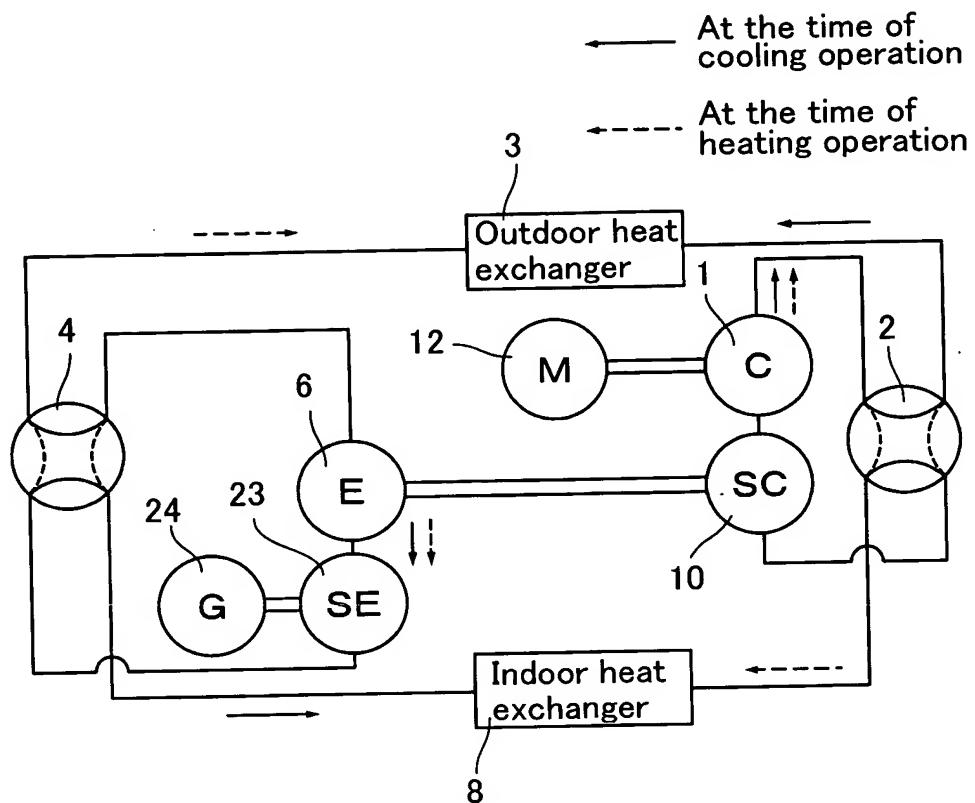


Fig. 27

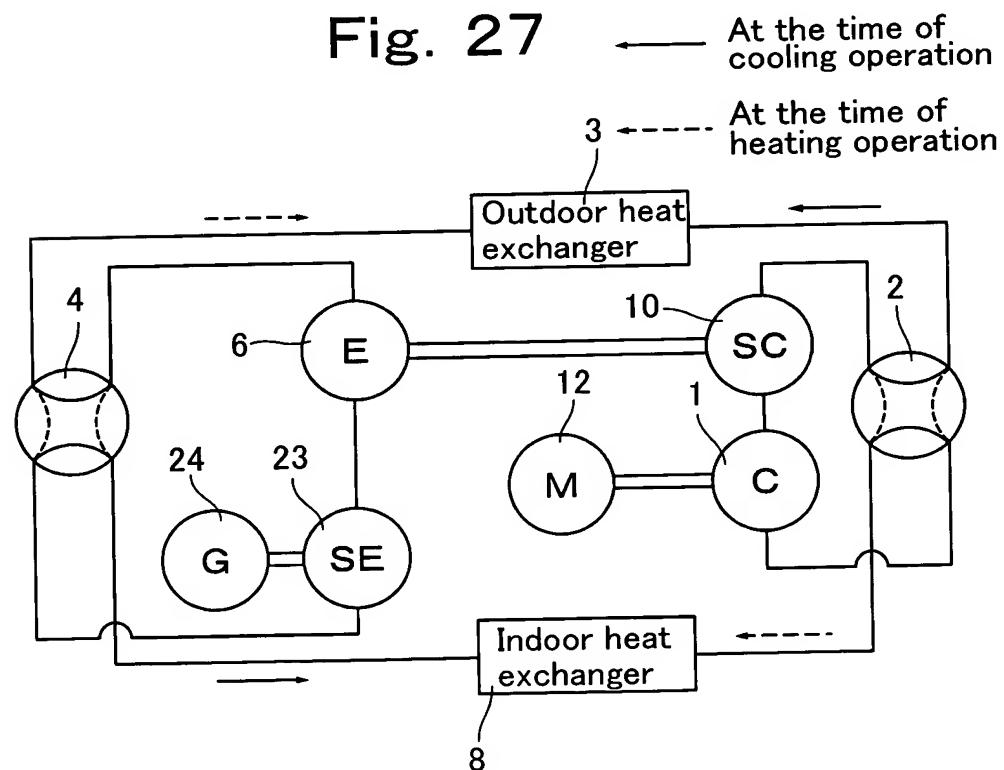


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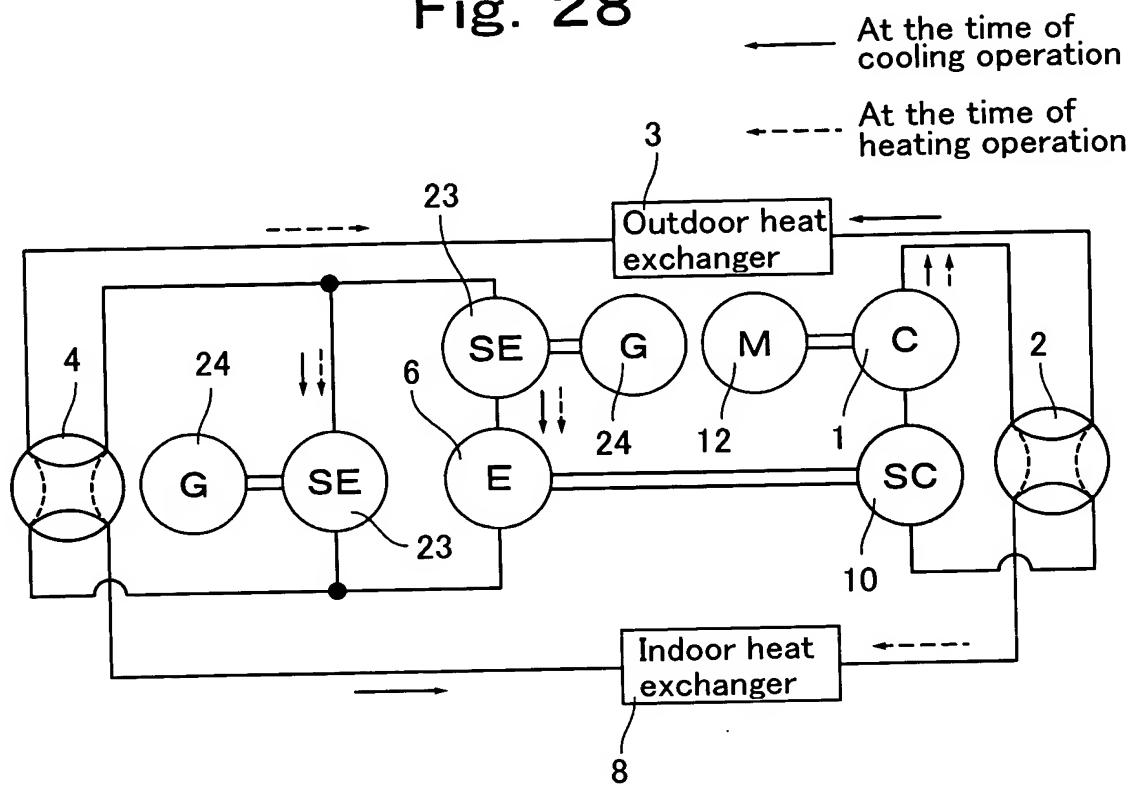


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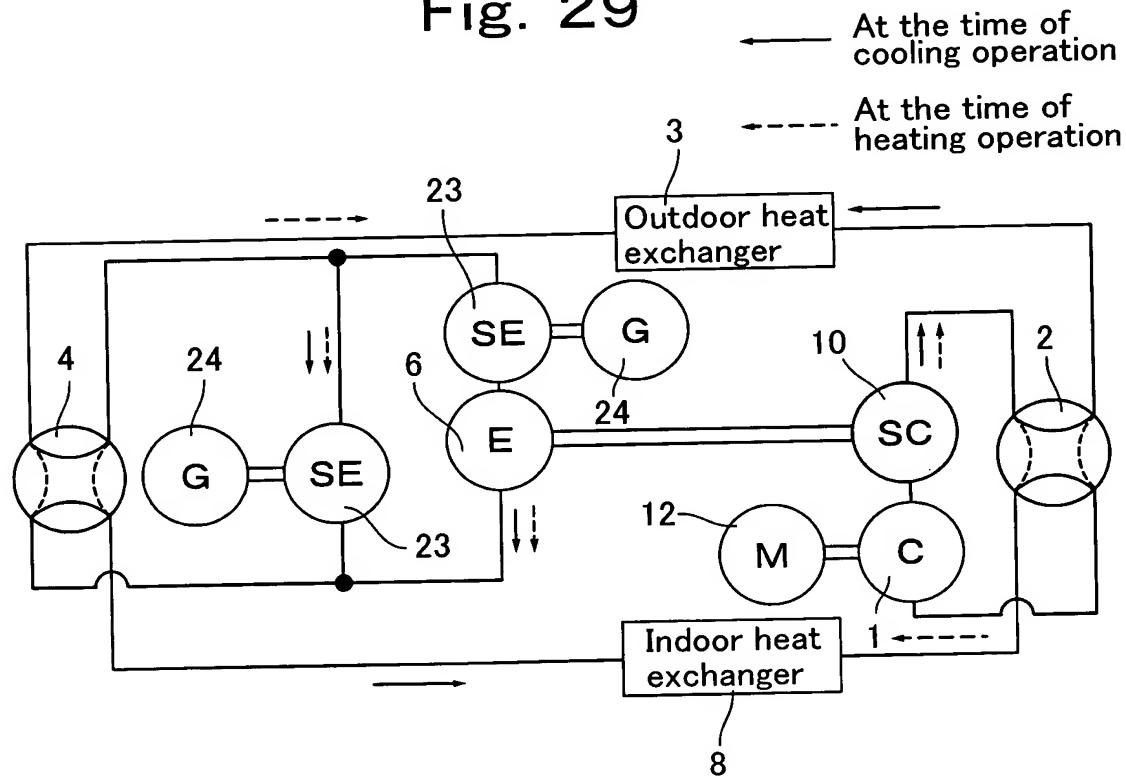


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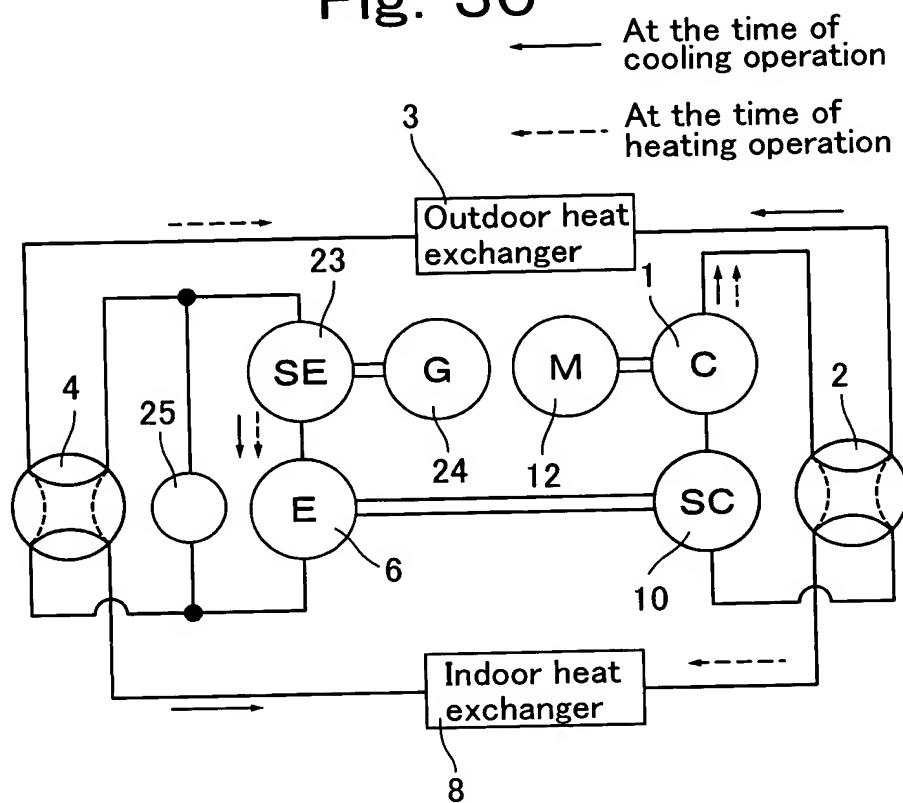


Fig. 31

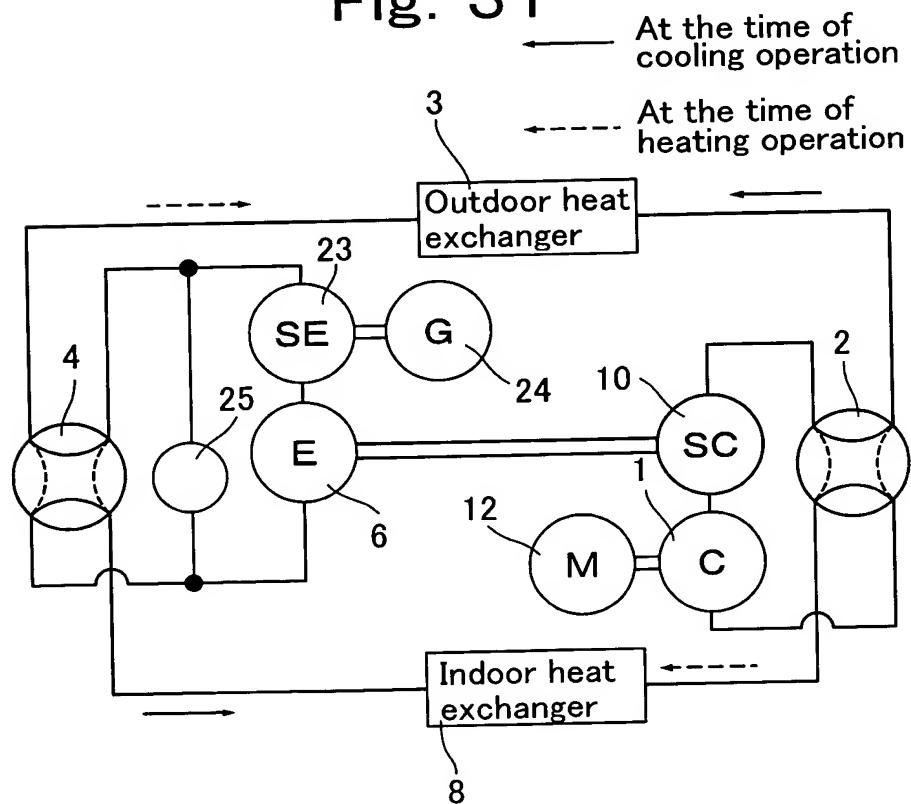


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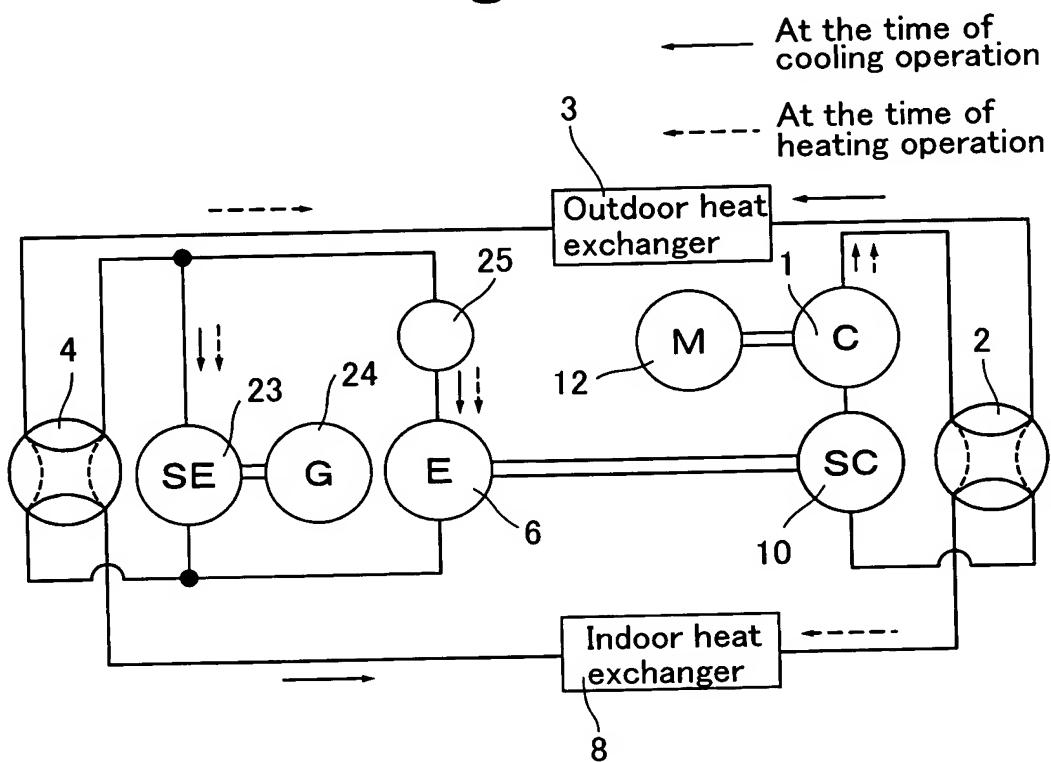


Fig. 33

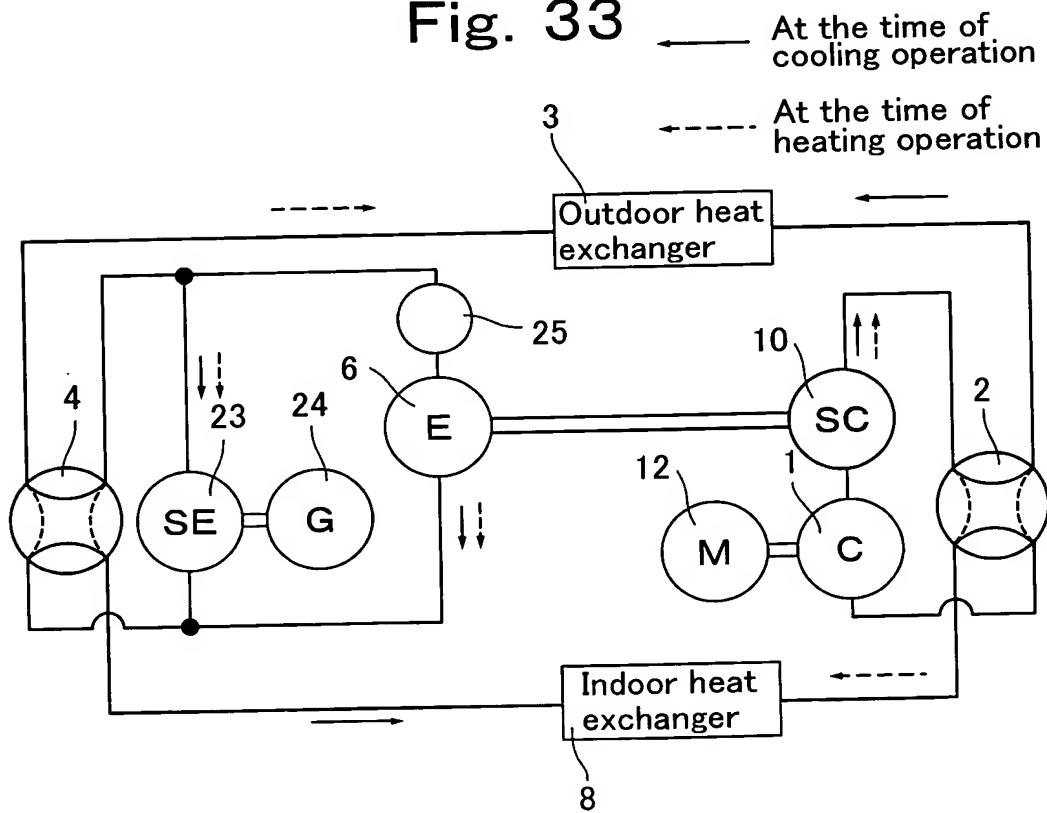


Fig. 34

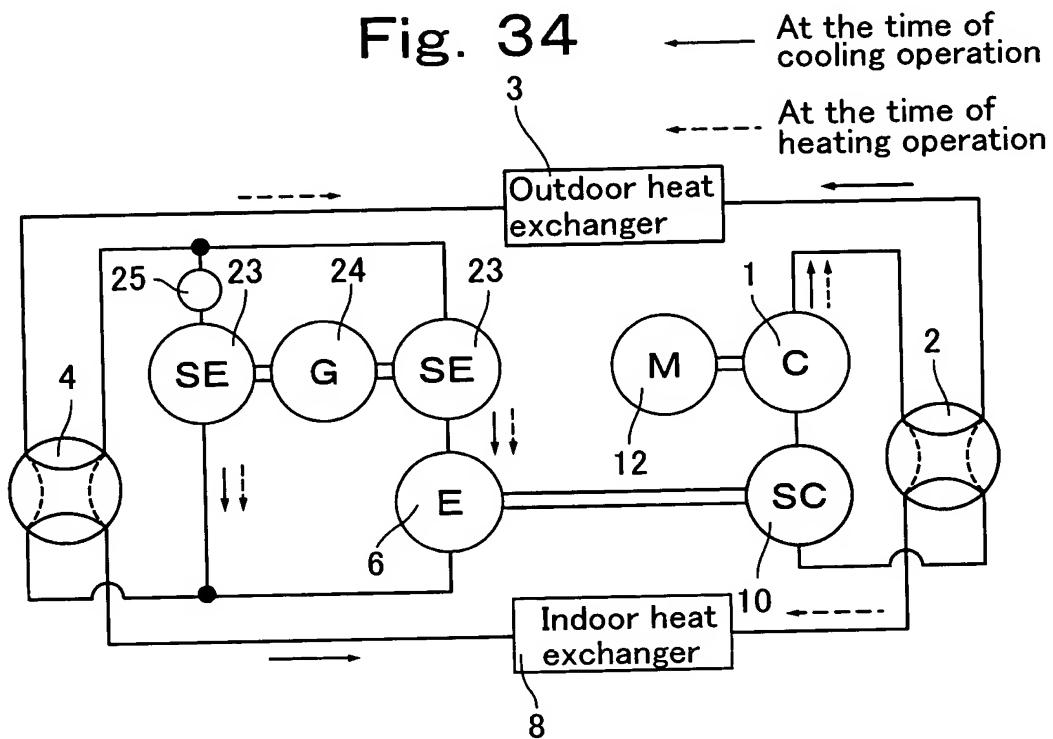


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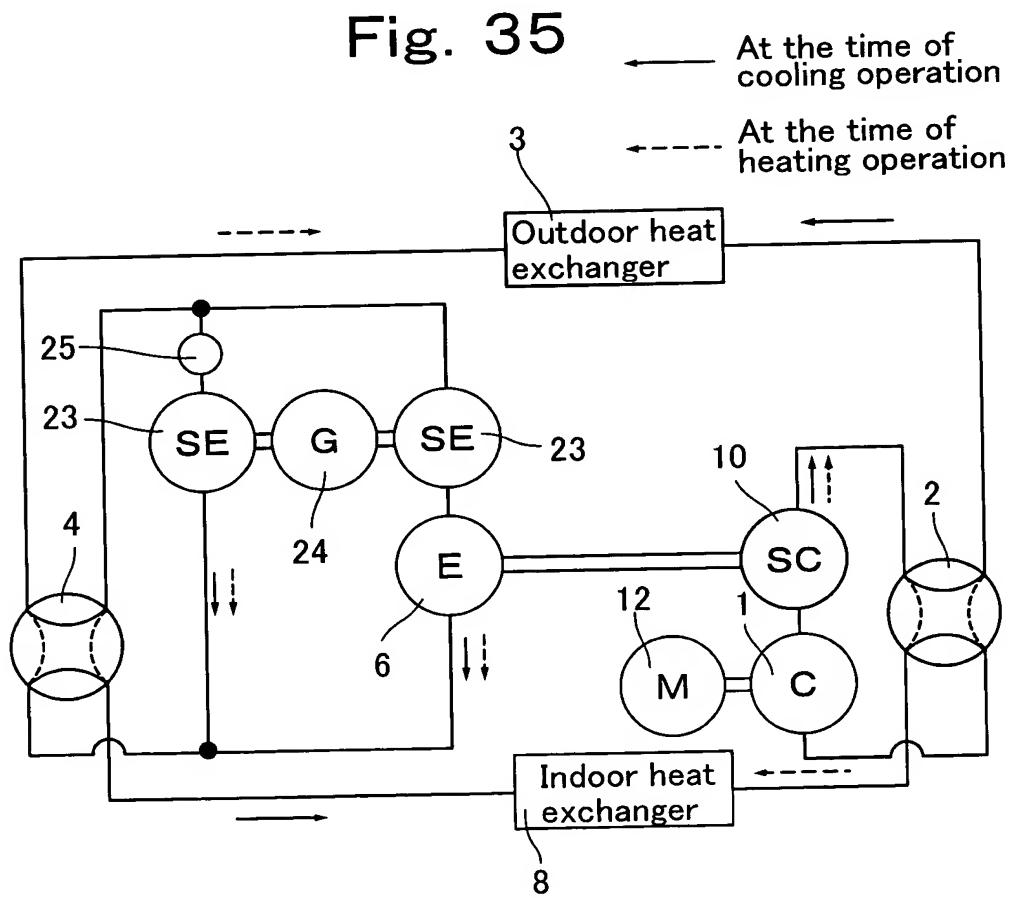


Fig. 36

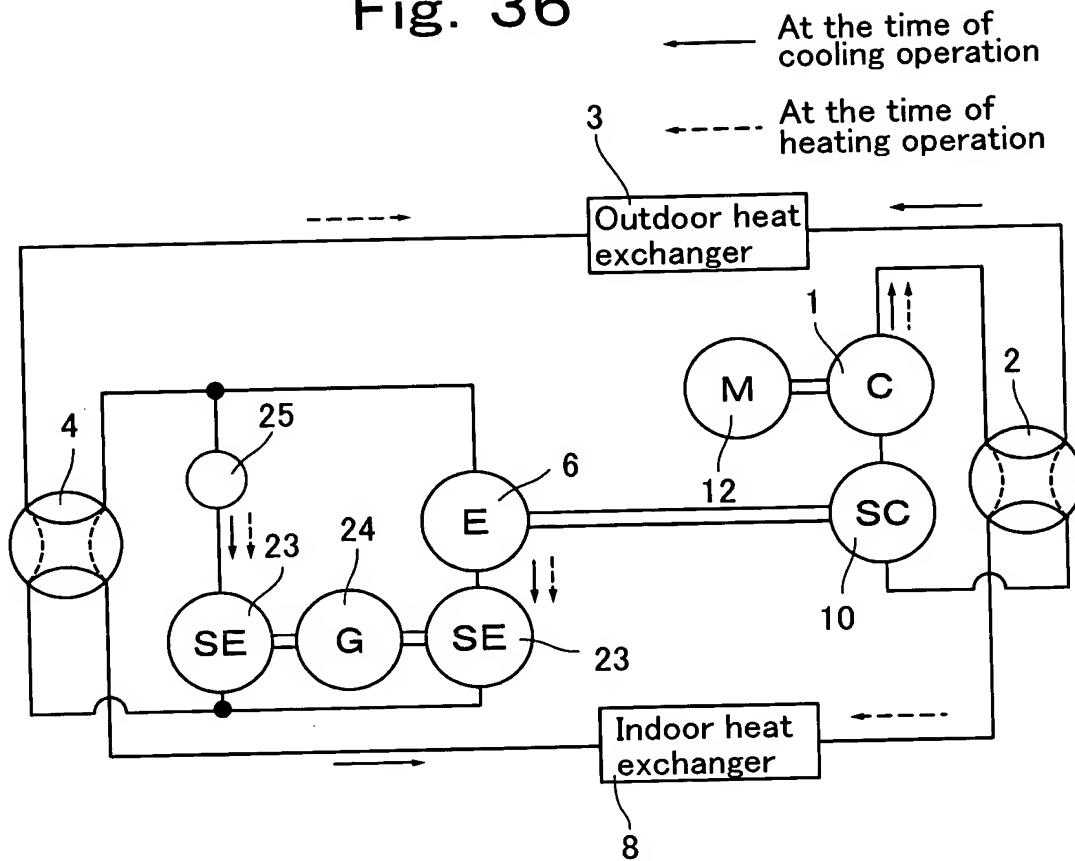


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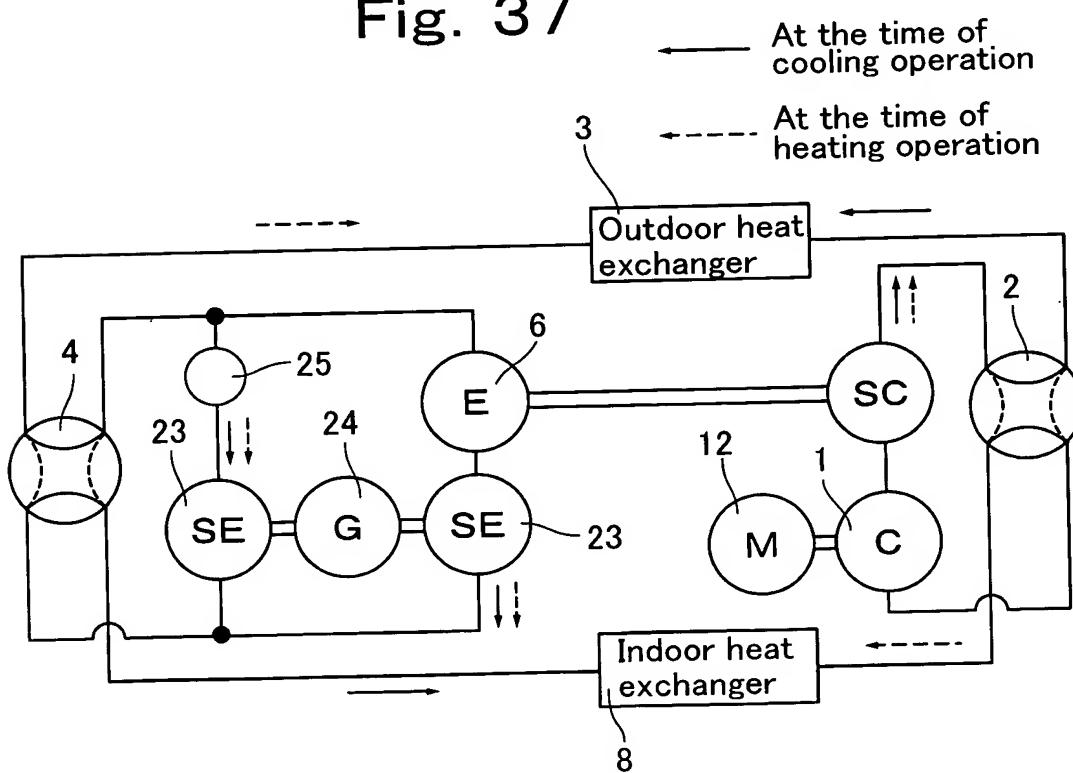


Fig. 38

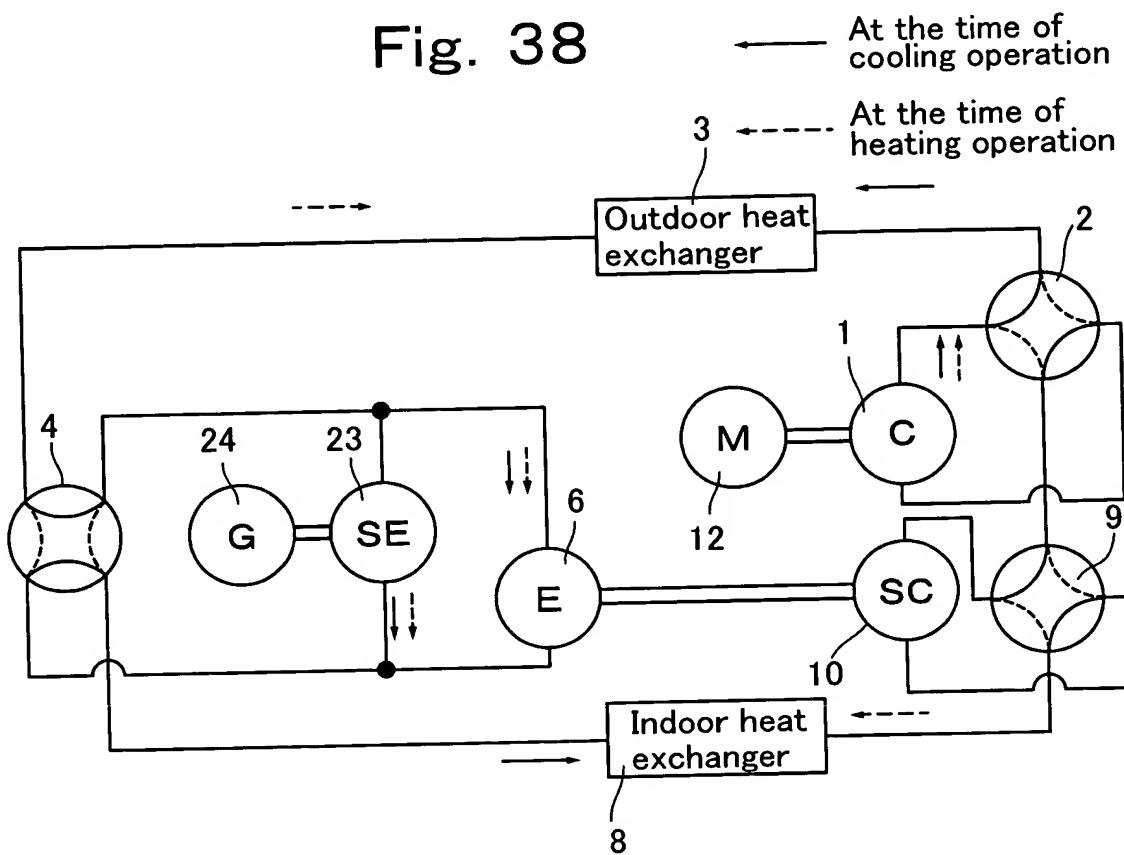


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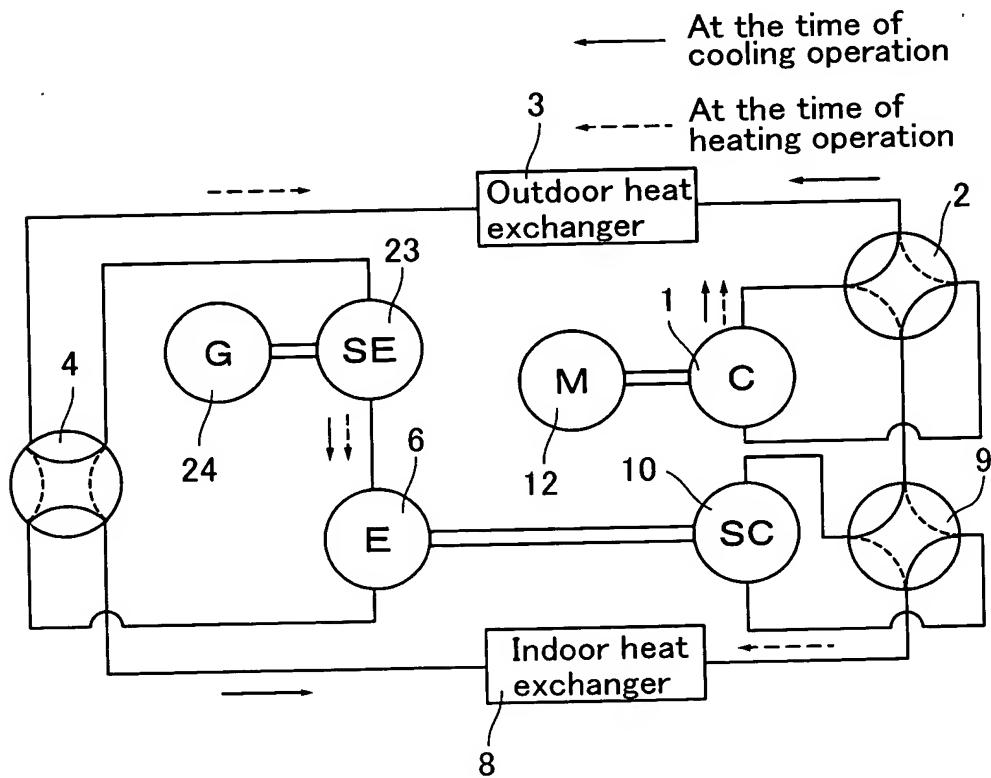


Fig. 40 ← At the time of cooling operation

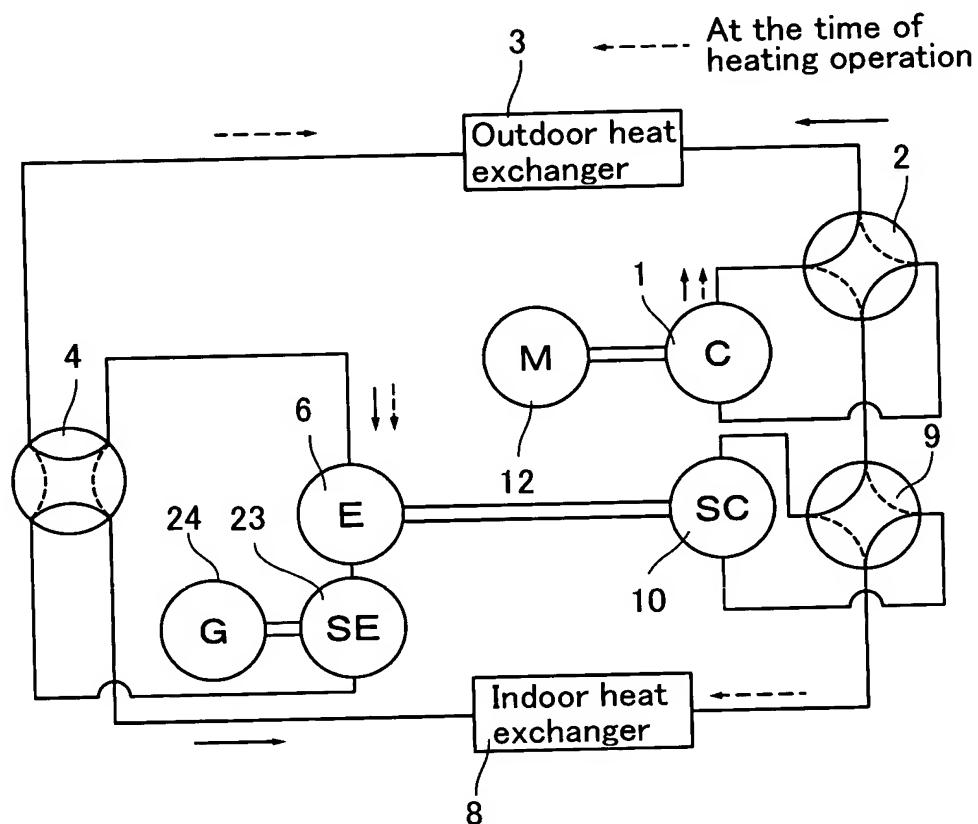


Fig. 41 ← At the time of cooling operation

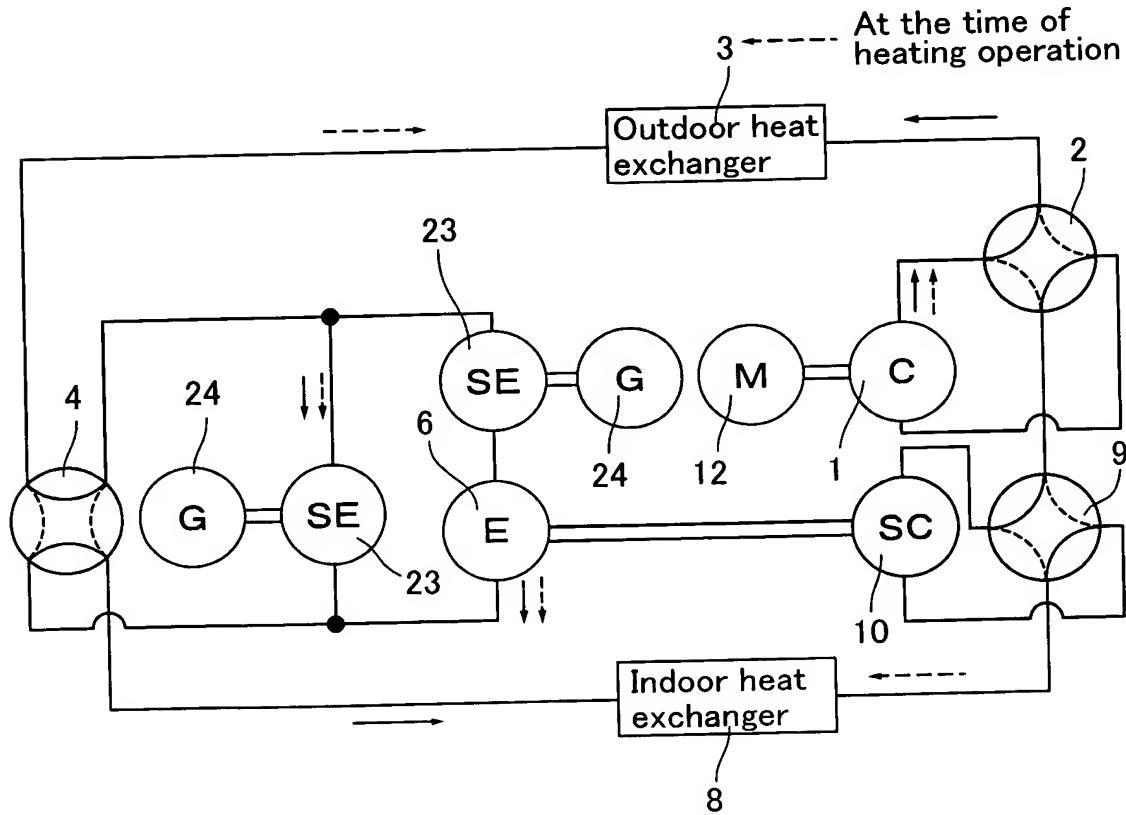


Fig. 42

At the time of
cooling operation

At the time of
heating operation

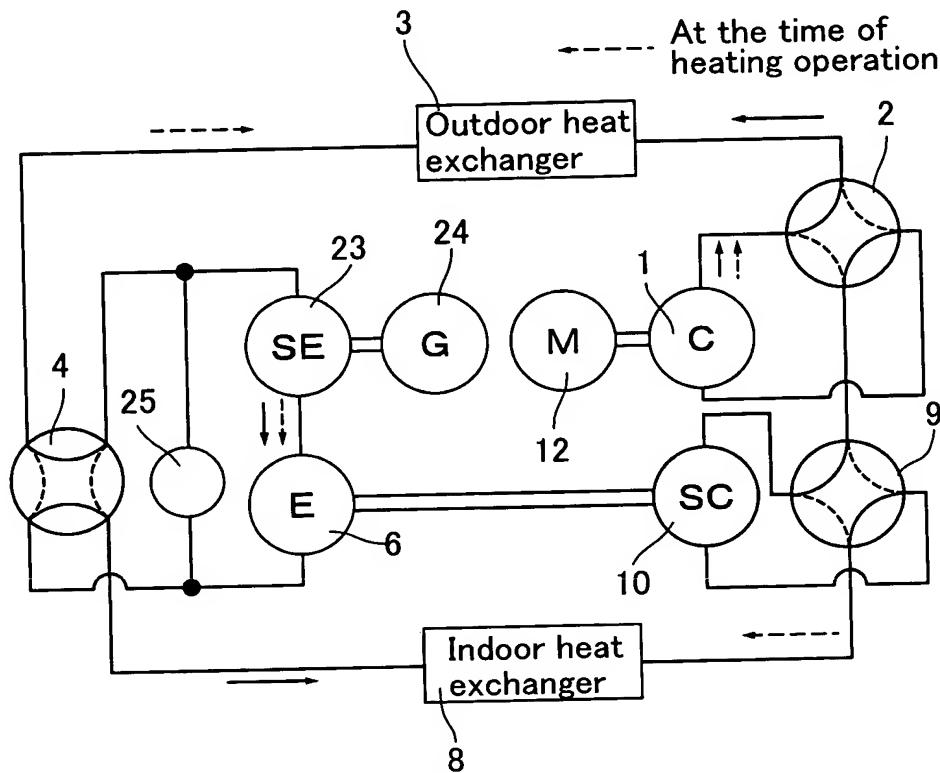


Fig. 43

At the time of
cooling operation

At the time of
heating operation

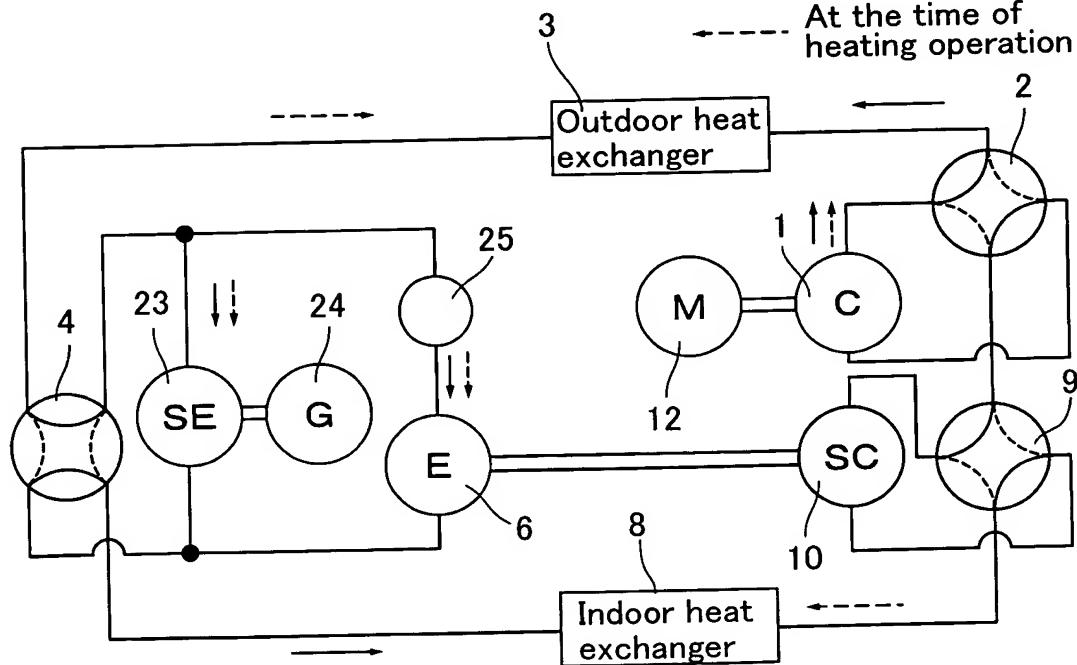


Fig. 44

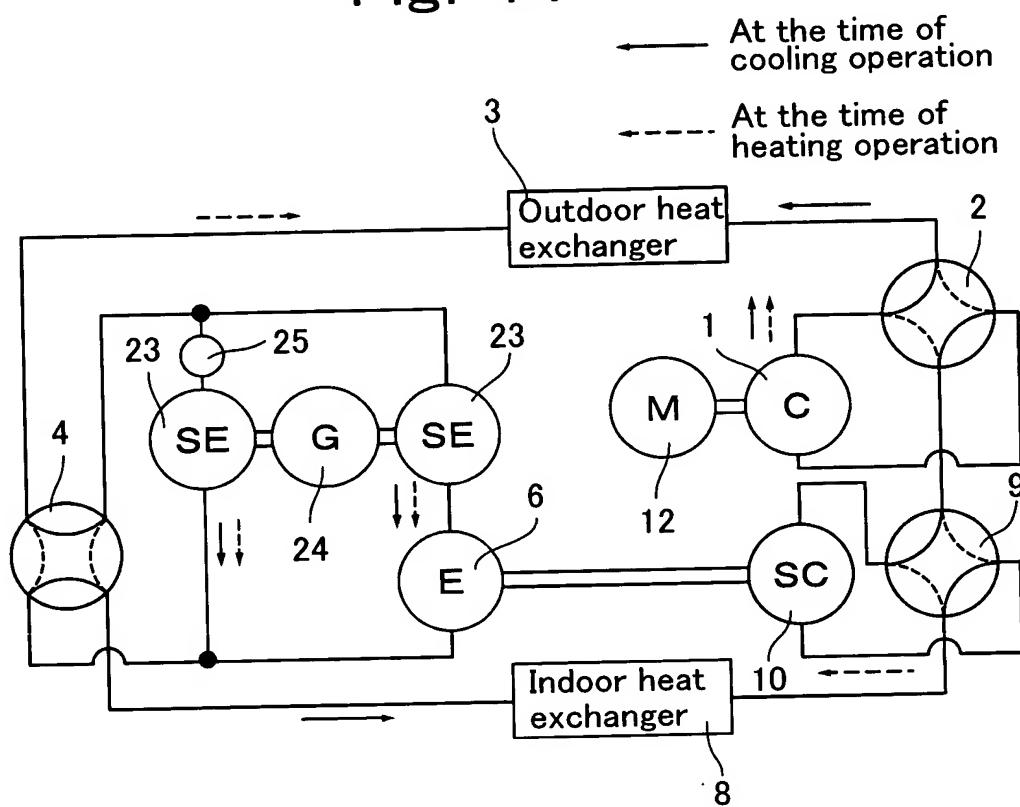


Fig. 45

